

NOTES ON THE SPECIES OF ERYTHRINA XIX.

B. A. Krukoff

Consulting Botanist of Merck Sharp & Dohme Research Laboratories, Rahway, New Jersey; Honorary Curator of New York Botanical Garden,

Since the last paper of this series was published, 282 new collections were examined and are cited herein, including 18 extensions of ranges. No novelties are described. The especially important cited specimens are of plants growing in two Botanical Gardens in Hawaii, which are under genetic studies by David Neill. They are cited under "Hawaii: cult., Neill, D."

In this paper I am also suggesting taxonomical chemical and/or genetic studies appropriate to certain species which are insufficiently known either because they are poorly collected or for other reasons.

1. Erythrina fusca Loureiro, Fl. Cochinch. 427. 1790, based on Gelala aquatica Rumphius, Herb. Amb. 2: 235. tab. 78. 1750.

Venezuela: Sucre: distr. Benitez, J. Steyermark 121223 (MO). Brazil: Pará: M. G. Silva 3084. Ecuador: Azoques, C. H. Dodson 9176 (MO); Babahoya (MO), Mary Fallen 683 (MO). Comoro Islands, Mayotte, Lorance 2817 (MO). Cuba: Angela Leifa s/n (June 1982), (cult.). Jamaica: R. W. Read 1789 (US) (cult.). Hawaii: cult., D. Neill 5279 (Waimea 74s99; Krukoff 1972/14.)

This is the first record of this species from Sucre.

It is important to check genetically and chemically on this species as it occurs in the New and the Old World; also on a form of this species from the Carolines, Solomon Islands, Samoa and New Caledonia with sublobate leaflets especially pronounced in seedlings. The only other Erythrina which has sublobate leaflets is a form of the unrelated E. suberosa which occurs in Circars, India. It may be a good subspecies.

2. Erythrina crista-galli L. Mant. 99. 1767.

Paraguay: Paraguari: M. M. Arbo 1746 (MO). Argentina: Buenos Aires: James Solomon 4015 (MO). Bolivia: Cochabamba: St. G. Beck 4017. Mexico: Michoacán: Morelia, H. M. Hernandez M. 100 (cult). Nicaragua: Matagalpa: cult., Antonio Molina R. 31614 (F). Hawaii: cult., D. Neill 5271 (Waimea 75p30), 5276 (Waimea 74p840) (used in hybridiz.)

As this species has been in cultivation for a very long time, it has numerous cultivars, etc.

4. Erythrina dominguezii Hassler, Physis 6: 123. 1922.

Brazil: Brazilia, E. P. Heringer 7250, 7293, 7297. Hawaii: cult., D. Neill 5277 (Waimea 74s870) (used in hybridiz.)

The syntypes of this species are from Formosa (Guaycule), Argentina, and Paraguay, whereas the type locality of E. verna is Rio de Janeiro. Dr. E. P. Heringer in a letter to me tells that they are easily separated in the field. According to him, "E. dominguezii has orange flowers and E. verna has red ones. E. dominguezii has a dense corky bark; and found in gallery forests and cerrados, whereas E. verna is a large tree of the high forest. The greatest difference between these two species are in the stems; E. dominguezii has a dense corky bark, whereas E. verna has smooth usually greenish bark."

Both trees are leafless when in flower, and this complicates the situation. Several collections taken over a period of years by Dr. A. C. Schulz from Choco, Argentina are very uniform and so are the specimens of Dr. Heringer from Brasilia, and they doubtless, which we now know, are E. dominguezii. The same may be said concerning collections from Rio de Janeiro, São Paulo, etc. The ranges of these two entities appear to overlap in Bolivia. (see under "E. flammea") and in Central Brazil.

It is important to collect specimens in flower and in leaf from the same tree of each of these two entities and study them taxonomically, genetically, and chemically.

5. Erythrina ulei Harms, Verh. Bot. Ver. Brand. 48: 172. 1907.

Ecuador: Napo: Holguer Lugo S. 2218 (MO).

Poorly collected species largely from Subandean South America; leafless when in flower.

6. Erythrina verna Velloso, Fl. Flum. 304. 1825.

Brazil: Reserva Ecol. do Roncador, E. P. Heringer 69 (MO); Acre: S. R. Lowrie 573 (corolla scarlet); Rio Grande do Sul: J. Eugenio Leite 2837 (F).

For discussion of this species see under E. dominguezii.

7. Erythrina poeppigiana (Walpers) O. F. Cook, U.S.D.A. Div. Bot. Bull. 25: 57. 1901..

Erythrina poeppigiana (Walpers) O. F. Cook, forma redmondii, Steyermark and Lasser, Phytologia 48 (4): 286. 1981.

, Peru: San Martin: J. Schunke-V. 8231 (MO). Ecuador: Los Rios: C. H. Dodson 8865 (MO); prov. Pastaza, Holguer Lugo S. 4176 (MO), 4231 (MO), 4391 (MO), 4453 (MO), 4509 (MO). Santo Domingo: cult., M. Mexia 9688, T. Zanoni 10530, 12101, 21313.

Costa Rica: Heredia: cult., D. Neill 5092, G. S. Hartshorn 1084 (F). Venezuela: Caracas: cult., L. E. Skog 1206; Miranda: Los Chorros, Avenida principal Caracas en frente de la Escuela Hev-roica, alt. 900 m, 9 March, 1981, Parker Redmond s.n. (holotype of the form, VEN).

These are the first records of this species from prov. Los Ríos, and Pastaza, Ecuador.

The new form was described from a cultivated plant on a single character - yellow flowers, which is completely unreliable in this genus. We have well over two dozen of species which once in a while in wild populations have white, yellow, pink, pale, or other colors - E. variegata, E. tahitensis, E. caffra, E. berteroaana, E. speciosa, E. herbacea ssp. herbacea, etc. They are probably mutants and this is now under study by David Neill, under the guidance of Dr. Peter Raven, in Hawaii. In a recent letter to me David Neill wrote "The local wild population of E. tahitensis in Hawaii may include trees with orange, yellow, white, and greenish flowers all within a few hectares."

8. Erythrina suberosa Roxburgh, Hort. Beng. 53, nomen 1814; Fl. Ind. 3: 253. 1832.

Hawaii: cult., D. Neill 5273 (Waimea 75s960), (used in hybridiz.).

10. Erythrina stricta Roxburgh, Hort. Beng. 53, nomen 1814; Fl. Ind. 3: 251. 1832.

Burma: J. Keenan 1119 (K). Thailand: C. Phengklai 3121 (K).

11. Erythrina resupinata Roxburgh, Hort. Beng. 53, nomen 1814; Pl. Coromandel 3:15, pl. 220. 1819.

In Queensland Garden 13: 10-11, August 1975, is a paper by G. S. Srivastava on Erythrina resupinata. This is probably a most comprehensive paper on this species. It gives in detail it's distribution in India in Uttar Pradesh and in Bihar State. It also describes in detail tree stages of its cycle of growth and flowering. This species is dormant during the winter months, and it flowers and produces fruits usually from February to April, at which time it has no leaves. The vegetative stage begins about one month after maturing of seeds.

12. Erythrina arborescens Roxburgh, Hort. Beng. 53, nomen 1814; Pl. Coromandel 3: 14, pl. 219. 1819.

India: K. Haridasan s.n. (July 10, 1981).

13. Erythrina subumbrans (Hasskarl) Merrill, Philipp. Sci. 5: 113. 1910.

India: A. V. N. Rao s.n. (December 7, 1981); Yercaud: T. Saldanha s.n.

14. *Erythrina breviflora* Alph. DeCandolle, Prodr. 2: 413. 1825.

Mexico: Morelos: M. Sousa 9808.

14b. *Erythrina oaxacana* (Krukoff) Krukoff Annal. Miss. Bot. Gard. 66: 426. 1979.

Mexico: Oaxaca; Tlacolula, Mario Sousa 9702, 9714.

14c. *Erythrina batolobium* Barneby and Krukoff, Allertonia 3: 7. 1982.

Mexico: Guerrero: O. Tellez 727 (Mexu), M. T. German 964 (MO). M. Sousa 3140 (Mexu); Michoacán: H. M. Hernández 4; Oaxaca: M. Sousa 5811 (Mexu).

These are the first records of this species for Michoacán and Oaxaca.

15. *Erythrina edulis* Triana in M. Micheli, J. Bot. (Morot.) 6: 145. 1892.

Peru: S. S. Tillet 673-316 (US); Huanuco: J. Schunke 8313. Madre de Dios: Al. Gentry 27385. Ecuador: Tungurahua: Holguer Lugo S. 1772 (MO), 1904 (MO); Azuay: H. G. Barclay 8342, G. Harling 8537 (MO); Cotopaxi: G. Harling 9096 (MO); Napo: H. Balslev 10324; Tungurahua: Al Gentry 28758.

This is the first record of this species from Madre de Dios.

H. Balslev 8342 is grading into E. aff. edulis.

15a. *Erythrina aff. edulis* Triana, see Annal. Miss. Bot. Gard. 66: 428. 1979.

Colombia: Choco: A. Gentry 24176.

15b. *Erythrina megistophylla* Diels, Biblioth. Bot. 116: 96. 1937.

Ecuador: Azoques: C. H. Dodson 8887.

16. *Erythrina speciosa* Andrews, Bot. Repos. 7: pl. 443. 1806.

U.S.A.: California: cult. J. Bauml. 702 (HNT). Costa Rica: Puntarenas: cult., D. Neill 5098. Brazil: Bahia: André M. de Carvalho 348 (cult.).

18. *Erythrina schimpffii* Diels, Biblioth. Bot. 116: 96. 1937.

Ecuador: El Oro: Linda Albert de Escobar 1202, C. H. Dodson

8934 (MO) (inflourescences from the base of trunk). Azoques:
C. H. Dodson 9177 (MO); Guayas: A. S. Hitchcock 20418 (A).

These are the first records of this species for the provinces El Oro and Azoques.

Flower on older branches from lower part of trunk (A. C. Hitchcock 20418); flower borne on old wood (Linda Albert de Escobar 1202).

19. Erythrina montana Rose and Standley, Contr. U.S. Natl. Herb. 20: 179. 1919.

Mexico: Durango: W. L. Wagner 3972 (MO); Michoacan: H. M. Hernández 105; Guerrero: H. M. Hernández 106.

This is the first record of this species for Michoacan.

20. Erythrina leptorhiza Alph. DeCandolle, Prodr. 2: 413. 1825.

Mexico: Michoacan: H. M. Hernández 99, caretera Mexico-Oaxtepec H. M. Hernández 37.

21a. Erythrina sousae Krukoff and Barneby, Annal. Miss. Bot. Gard. 66: 432. 1979.

Mexico: Oaxaca/Chiapas: MacDougall s.n. (May 1967), Oaxaca: distr. Juquilla, M. Sousa 10534, 10536.

22a. Erythrina herbacea L. subsp. herbacea.

Erythrina herbacea L. Sp. Pl. 706. 1753. sens., str.

U.S.A.: Florida, Merrit Island: A. S. Rhoads 8391 (MO).

Hawaii: cult.; D. Neill 5278 (Waimea 76s187).

22b. Erythrina herbacea L. subsp. nigrorosea Krukoff and Barneby, Phytologia 25(1): 6. 1972.

Mexico: Veracruz: G. Castilleja 52, 54.

23. Erythrina standleyana Krukoff Brittonia 3: 301. 1939.

Belize: near Belmopan, O. Tellez et. al. 5655 (UNAM).

Hawaii: cult.: D. Neill 5230 (Waimea 76c261), 5265 (Waimea 76s1056) (used in hybridiz.).

24. Erythrina flabelliformis Kearney, Trans. New York Acad. Sci. 14: 32. 1894.

U.S.A.: Arizona: L. C. Higgins 12892.

25. *Erythrina coralloides* Alph. DeCandolle Prod. 2: 413. 1825.

Mexico: Veracruz: R. Ortega 1277 (F), H. Hernández 38; Oaxaca: M. Sousa 9877. Hawaii: cult., J. Bauml 699. U.S.A.: California: cult., Robert Gustafson 2508(?).

Hawaii: cult., D. Neill 5240 (PTBG 700145), 5264 (Waimea 74c1451; Krukoff 1970-133), 5187 (Waimea 76c260).

27. *Erythrina pudica* Krukoff and Barneby, Phytologia 27: 114. 1973.

Mexico: Chiapas: C. D. Johnson 1048/79.

- 28a. *Erythrina lanata* Rose subsp. *lanata*.

Erythrina lanata Rose., U.S.D.A. N. Amer. Fauna 14: 81. 1899.

Mexico: Oaxaca: M. Sousa 10751.

- 28b. *Erythrina lanata* Rose subsp. *occidentalis* (Standley) Krukoff and Barneby, Phytologia 27: 117. 1973.

Mexico: Sinaloa; Kinnach 699 (HNT).

- 28c. *Erythrina lanata* subsp. *calvescens* Krukoff Annal. Miss. Bot. Gard. 66:434. 1979.

Mexico: Oaxaca: Tuxtepec, M. Sousa 9489; Veracruz: Roberto V. Ortega O. 287 (MEXU).

29. *Erythrina goldmanii* Standley, Contr. U.S. Nat. Herb. 20: 181. 1919.

Mexico: Oaxaca: M. Sousa 9882.

30. *Erythrina caribaea* Krukoff and Barneby, Phytologia 25: 9. 1972.

Mexico: Veracruz: Las Tuxtles, O. Tellez 3557 (UNAM).

31. *Erythrina folkersii* Krukoff and Moldenke, Phytologia 1: 286. 1938.

Belize: Boutin 5147 (MO), J. D. Dwyer 15118.

Hawaii: D. Neill 5243 (PTBG 700010; Krukoff 1969-109) (used in hybridiz.)

34. *Erythrina cochleata* Standley, Contr. U.S. Nat. Herb. 20: 179. 1919.

Costa Rica: Heredia: D. Neill 5015, 5101, 5102.

This is the first record of this species from Heredia.

36. Erythrina chiapasana Krukoff Brittonia 3: 304. 1939.

Mexico: Veracruz: G. Castilleja 46, 47, 48, 49, 50, 51, 65;
Chiapas: T. Croat 47662 (MO).

Hawaii: cult., D. Neill 5246 (PTBG 700007; Krukoff 1969-68),
5262 (Waimea 74s861; Krukoff 1973-16), 5263 (Waimea 74s876;
Krukoff 1969-68.)

39. Erythrina williamsii Krukoff and Barneby. Phytologia 22 (4):
266. 1971.

Guatemala: Alto Verapaz: J. D. Smith 1793.

Hawaii: cult., D. Neill 5245 (PTBG 750418; Krukoff, no colln.
number.)

41. Erythrina chiriquensis Krukoff, Brittonia 3: 222. 1939.

Nicaragua: Matagalpa: cordillera Darienensis, 1100-1400 m,
D. Neill 5050, 5051, 5052, 5054, 5055, Stevens 10046. Costa Rica:
Heredia: D. Neill 5090. Panama: Chiriqui: P. Hammel 7146 (MO),
Ch. von Hagen 2125, J. P. Folsom 4022 (MO), 4023 (MO).

It would be important to compare genetically and chemically
the populations of this species that occur in Panama with Costa
Rica and Nicaragua.

42. Erythrina macrophylla Alph. DeCandolle, Prodr. 2: 411. 1825.

Guatemala: Sacatepequez: San Lucas to Antigua, Joel Meji-
canos s.n. (May 2, 1982); Quetzaltenango: Zunil, Betty White
39 (F).

Hawaii: cult., D. Neill 5231 (Waimea 74s97; Krukoff 1972-10),
5232 (Waimea 75s1136; Krukoff 1975-4) (Used in hybridiz.), 5239
(PTBG 700012; Krukoff 1929-167), 5249 (PTBG 730706; Krukoff 1973-
15), 5260 (Waimea 74s858; Krukoff 1973-15).

43. Erythrina guatemalensis Krukoff, Amer. Jour. Bot. 28: 688.
1941.

Hawaii: cult., D. Neill 5242 (PTBG 750419; Krukoff colln
number not recorded) (used in hybridiz.), 5257 (Waimea 74s874;
Krukoff 1974-2) (used in hybridiz.), 5258 (Waimea 74s103; Krukoff
1969-220) (used in hybridiz.)

44. *Erythrina globocalyx* Porsch & Cufodontis, Arch. Bot. Sist. Fitog. & Genet. 10: 35, pl. 1. 1934.

Costa Rica: San José: D. Neill 5008, 5010, 5140 (between San Isidro and Las Nubes), D. Neill 5011, 5033, 5142, 5143 (Las Nubes, + 1800 m); Heredia: D. Neill 5093, 5094 (lower montane forest, + 1900 m).

This is the first record of this species from the province of Heredia.

45. *Erythrina steyermarkii* Krukoff and Barneby in Mem. NY Bot. Gard. 20: 175. 1970.

Nicaragua: Zelaya: W. D. Stevens 12229, Lewis E. Long 160 (F).

47. *Erythrina berenices* Krukoff & Barneby, Phytologia 27: 120. 1973.

Mexico: Veracruz: Las Vigas, 2250 m, G. Castilleja 58.

48. *Erythrina huehuetenangensis* Krukoff & Barneby, Mem. N.Y. Bot. Gard. 20(2): 172. 1970.

Guatemala: Alta Verapaz, vic. San Juan Chamelco: Michael R. Wilson 40841 (F).

This is the first collection of this species outside of the municipality of Barillas.

49. *Erythrina lanceolata* Standley, Contr. U.S. Nat. Herb. 17: 432. 1914.

Nicaragua: Jinotega: D. Neill 330 (MO). Costa Rica: Alajuela: W. D. Stevens 13767 (MO); Guanacaste: T. Croat 47095 (MO); Puntarenas: V. J. Dryer 947 (MO). Panama: Coclé: T. Antonio 3607 (MO).

This is the first record of this species from Coclé.

I suggest of using for genetic work on this species the specimens from Honduras.

50. *Erythrina costaricensis* M. Micheli, Bull. Herb. Boissier 2: 445. 1894.

Costa Rica: Puntarenas: D. Neill 5099. Panama: Colon: T. Antonio 4513 (MO), Kenneth Sytsma 1671 (MO); Canal Zone: Kenneth Sytsma 1932 (MO).

Hawaii: cult., D. Neill 5261 (Waimea 76c263).

53. Erythrina berteroa Urban, Symb. Ant. 5: 370. 1908.

Santo Domingo: T. Zanoni 10831, 11869, Alain Liogier 9011-15. Mexico: Oaxaca: O. Tellez 401 (MO); Chiapas: H. Sanchez-Mejorada 656 (HNT), T. Croat 47481 (MO). Guatemala: Petén, near Poptun, Krukoff 1970-58. Nicaragua: Managua: Stevens 2911; Boaco: M. Araquistain 1031 (MO); Jinotega: M. Araquistain 1559 (MO); Madriz: W. D. Stevens 16412 (MO). Costa Rica: Heredia: D. Neill 5091, 5095, 5097. Panama: Jim Folsom 3957.

These are the first records of this species for the Depts. of Oaxaca and Madriz.

I suggest using for genetic work specimens grown from seeds from Panama.

54. Erythrina rubrinervia H. B. K., Nov. Gen. & Sp. 6: 434. 1824.

Panama: Darien: R. Hartman 12062 (MO), Venezuela: Tachira: J. Steyermark 118206 (MO). Colombia: Choco: E. Forero 6822.

Hawaii: cult., D. Neill 5247 (PTBG 711193; Krukoff s.n.), 5270 (Waimea 74p325; Krukoff s.n.)

I suggest using for genetic work specimens raised from seeds collected by me in Colombia.

These are the first records of the species for Choco.

56. Erythrina salviiflora Krukoff & Barneby, Phytologia 25: 14. 1972.

Guatemala: Solola: finca Montequina, Joel Mejicanos s.n. (May 2, 1982); Suchitepequez: Waimea 74s 863 (Krukoff 1969/58); 74s895 (ident. Krukoff May/Sept. 1979), 75s1138.

Hawaii: cult., D. Neill 5237 (PTBG 721346; Krukoff 1969-58).

I was unable to compare in the field E. salviiflora of Guatemala with its relative E. rubrinervia which I collected only in Colombia. It would be important to compare them taxonomically, genetically and chemically seen on the photograph in Symposium # 4 the lower mature flowers of E. salviiflora decline toward the rachis.

58. Erythrina gibbosa Cufodontis, Arch. Bot. Sist. Fitog. & Genet. 10: 34. 1934.

Nicaragua: Zelaya: W. D. Stevens 4798 (MO). Costa Rica: Alajuela: D. Neill 5028; Puntarenas, D. Neill 5100, D. Janzen 10627 (MO).

59. *Erythrina amazonica* Krukoff, Brittonia 3: 270. 1939.

Brazil: Maranhão: D. C. Daly D321, N. A. Rosa 2464.

Poorly collected and poorly known species. It may eventually be split in at least two subspecies.

Hawaii: cult., D. Neill 5259 (Waimea 76s449; N. T. Silva 4239) (used in hybridiz.)

61. *Erythrina peruviana* Krukoff, Brittonia 3: 262. 1939.

Peru: Amazonas: Rio Santiago, F. D. Dominguez 12 (MO), 155 (MO).

This is the first record of this species for Amazonas.

62. *Erythrina mitis* Jacquin, Hort. Schoenb. 2: 47. 1797.

Venezuela: Miranda: J. A. Steyermark 125486, R. Liesner 9191; Yaracuy: R. Liesner 10138.

63. *Erythrina pallida* Britton & Rose, Bull. Torrey Bot. Club 48: 332. 1922.

Trinidad: Hayden Als s.n. (Tree A), s.n. (Tree B), s.n. (Tree C), s.n. (Caura). Venezuela: Miranda: R. Liesner 9148 (MO).

It would be important to check taxonomically (especially seeds), genetically and chemically this species with *E. mitis*.

- 64b. *Erythrina corallodendrum* var. *bicolor* Krukoff, Brittonia 3: 275. 1939.

Dominica: R. L. Wilbur 8243, C. A. Shillingford 149.

- 64c. *Erythrina corallodendrum* var. *connata* Krukoff, Brittonia 3: 276. 1939.

Virgin Island: St. Croix, J. Intema 166.

67. *Erythrina leptopoda* Urban & Ekman, Ark. Bot. 20A (5): 14. 1926.

Santo Domingo: M. Mexia 8875, Alain Liogier 24366, 26597, T. Zanoni 13349.

70. *Erythrina oliviae* Krukoff, Phytologia 19 (3): 128. 1969.

Mexico: Puebla: M. Sousa 9803; Chiapas: M. Sousa 11829 (MEXU).

This is the first record of this species from Chiapas.

72. Erythrina lysistemon Hutchinson, Bull. Misc. Inform. 1933: 422. 1933.

Zimbabwe: G. Pope 1027 (MO), Th. Muller s.n. (April 22, 1982).

73. Erythrina humeana Sprengel, Syst. 3: 243. 1826.

S. Africa: E. Cape: A. Jacot Guillarmod 8900. Zimbabwe: cult., coll. undesign. s.n. (June 1979).

Hawaii: Neill 5248 (PTBG 740187) (used in hybridiz.), 5274 (Waimea 74pl382) (cult.).

74. Erythrina zeyheri Harvey, Fl. Cap. 2: 236. 1862.

S. Africa: Transvaal: F. A. Rogers 14514 (K).

75. Erythrina acanthocarpa E. Meyer, Comm. Pl. Afr. Austr. 1: 151. 1836.

S. Africa: Queenstown. G. B. Whitehead s.n. (1979). U.S.: Cal, cult., Fred Meyer 1974/ s.n. (as to leaves; seeds do not belong here).

78. Erythrina vogelii Hooker f., Niger Flora 307. 1849.

Nigeria: J. D. Chapman 3957.

It would be important to check genetically and chemically on this species and on its close relative, E. senegalensis.

85. Erythrina decora Harms, Engl. Jahrb. 49: 441. 1913.

S. W. Africa: W. Giess s.n. (15/4-78).

86. Erythrina livingstoniana Baker, Oliver Fl. Trop. Africa 2: 182. 1871.

Zimbabwe: G. Pope 1511 (MO). S. Saunders s.n. (June 1979). Malawi: A. Kitchin s.n. (Sept. 1981).

88. Erythrina addisoniae Hutchinson & Dalziel, Bull. Misc. Inform. 1929: 17. 1929.

Ghana: A. A. Enti 195A.

93. Erythrina sigmoidea Hua, Bull. Mus. Hist. Nat. (Paris) 3: 327. 1897.

Nigeria: J. Lowe 3358 (K). Hawaii: cult., P.T.B.G. s.n. (F. Flynn 121).

94. *Erythrina latissima* E. Meyer, Comm. Pl. Afr. Austr. 1: 151. 1836.

South Africa: Natal: D. J. McDonald 254 (K).

Hawaii: cult., D. Neill 5254 (PTBG 721349), 5255 (PTBG 750281), 5256 (PTBG 750281), 5250 (PTBG 750281).

95. *Erythrina abyssinica* Lamarck, Encycl. Bot. 2: 392. 1788; ex. Alph. DeCandolle, Prodr. 2: 413. 1825. Gillet Kew Bull. 15: 426. 1962.

East Africa: A. Peter 33045, 49809 (MO), 49974 (MO).

Ethiopia: Shoa: Awash National Park, J. J. F. E. de Wilde 6347 (MO). Burundi: M. Reekmans 8049 (K); Kenya: Meyerhoff 121 M (K). Uganda: P. Rwaburindore s.n. (Dec. 4, 1981), 362 (MO).

Hawaii: cult., D. Neill 5234 (PTBG 770034 (used in hybridiz.)), 5251 (PTBG 740193; Fanshaw s.n. 11-2-72), 5252 (PTBG 731006)

It is important to check genetically and chemically on this polymorphic species, some specimens which have long linear or linear-caudate calyx-teeth and other specimens which have stoutly obovate or spatulate calyces.

In Journal Natural Products (45: 23. 1982) are listed chemical constituents of this species (presumably isolated from seeds).

96. *Erythrina variegata* L. Herb. Amboin. 10. 1754; Ameen. Acad. 4: 122. 1759, based on *Gelala alba* Rumphius, Herb. Amboin. 2: 234, tab. 77. 1750.

Kew: (cult.), Kew 404.62, 462.67. British Museum: M. E. Walsh 2250. Hawaii: cult., Foster Garden #A. Santo Domingo: cult., Alain Liogier 22412, M. Mejia 10993, S. Pelaez 357, T. Zanon 10808, 10823, 11344, 11345, 11516A, Angela Leifa s.n. (June 1982). Jamaica: R. W. Read 1822 (US). Tanzania: Mafia Island, Greenway 5051 (K), 5321 (K). Zanzibar: Last s.n. (K), Greenway 1374 (K). Madagascar: Hildebrand 3127 (BM); Western Indian Ocean, West Island, Aldabra Atoll, F. R. Fosberg 49516 (US), C. Rhyne 896 (US), D. R. Stoddart 942 (US). Celebes: W. Kaudern s.n. (Sept. 1981). Micronesia: Panapa, M. V. C. Fal-anruw 3238 (US).

Hawaii: cult., D. Neill 5218 (Waimea 74s892) (used in hybridiz.), 5253 (PTBG - no number) (used as pollen donor in hybridiz.).

97. *Erythrina tahitensis* Nadeau, Enum. Pl. Tahiti 80. 1873.

Hawaii: cult., D. Neill 5272 (Waimea 76e88).

99. Erythrina vespertilio Bentham in Mitch. Jour. Trop. Austr. 218. 1848.

Australia: Northern Territory: J. R. Maconochie 2301 (MO). ("biloba form"); Queensland: Bird Island, Stoddart, D. R. 5090 (L) (Island form).

102. Erythrina velutina Willdenow in Ges. Naturf. Freunde Berlin Neue Schriften 3: 426. 1801.

Venezuela: between Piritu and Barcelona, J. Steyermark 115493 (MO).

Hawaii: cult., D. Neill 5238 (PTBG 720492).

It would be important to check taxonomically on the form aurantiaca (when more abundant material of this form is available) and E. grisebachii genetically and chemically. It may well be that with new evidences both will be reduced to synonymy.

106. Erythrina perrieri R. Viguier, Not. Syst. 14: 175. 1952.

Hawaii: cult., D. Neill 5241 (PTBG 730308), 5280 (Waimea 74s857) (used in hybridiz.)

7. Erythrina x sykesii Barneby and Krukoff, Lloydia 37: 447. 1974.

U.S.A.: California: cult., J. Bauml 707 (HNT).

Hawaii: cult., D. Neill 5233.

Bibliography

(In order to conserve space, I am citing here only the papers which are not cited in previous Supplements).

1. Krukoff, B. A. Notes on the species of Erythrina XIV. *Phytologia* 44: 19-32. 1979.
2. Krukoff, B. A. Notes on the species of Erythrina XV. *Phytologia* 46: 88-93. 1980.
3. Barneby, R. and Krukoff, B. A. Notes on the species of Erythrina XVI. *Allertonia* 3: 7-9. 1982.
4. Krukoff, B. A. Notes on the species of Erythrina XVII. *Phytologia* 50: 112-129. 1982.
5. Krukoff, B. A. Notes on the species of Erythrina XVIII. *Allertonia* 3: 121-138. 1982.

In addition to the above cited papers, in *Allertonia* are published 11 more papers by various authors on Erythrina.

List of Exsiccatae

The first list of Exsiccatae was published in Supplement #13 (Phytologia 41: 256-300. 1979); it covers all papers up to and including Supplement #11; the second list in Supplement # 14 (Phytologia 44: 28-32. 1979) and it covers Supplements #12 and 13; the third list in Supplement # 15 (Phytologia 46: 92-93. 1980) and it covers Supplement # 15. The Fourth list covers Supplement # 17. The present list covers the present paper.

The first figure in Exsiccatae after the collector's name is the collection number of the specimen, and the figure in parenthesis is the number of species as they are arranged in conspectus of the species of the genus Erythrina (Lloydia 37 (3): 332-459. 1974) and the Supplements VII-XVIII.

Only numbered collections and those of which the dates of collections are recorded have been listed. If a collector gathered his collection together with others, only his is cited in this list. Collections with Dr. Prance's numbers are cited under Prance.

Antonio, T., 3607 (49), 4513 (50).

Araquistain, M., 1031 (53), 1559 (53).

Arbo, M. M., 1746 (2).

Barclay, H. G., 8342 (15).

Bauml, J., 699 (25), 702 (16), 707 (X7).

Boutin, 5147 (31).

Castilleja, G., 46 (36), 47 (36), 48 (36), 49 (36), 50 (36),
51 (36), 52 (22b), 54 (22b), 58 (47), 65 (36).

Chapman, J. D., 3957 (78), 4659 (K) (93).

Coll. undsgn., s.n., Kew 404.62 (96), s.n. (June 1979) (73).

Croat, T., 47095 (49), 47481 (53), 47662 (36).

Daly, D. C., D321 (59).

Dodson, C. H., 8865 (7), 8934 (18), 9176 (1), 9177 (18).

Dominguez, F. P., 12 (61), 155 (61).

Dryer, V. J., 947 (49).

Dwyer, J. D., 15118 (31).

Enti, A. A., 195A (88).

Falanruw, M. V. C., 3238 (96).

Fallen, Mary, 683 (1).

Folsom, Jim, 3957 (53), 4022 (41), 4023 (41).

Forero, E., 6872 (54).

Foster Garden, #A (cult.) (96).

Fosberg, F. R., 49516 (96).

- German, M. T., 964 (14c).
Giess, W., s.n., 15/4/78 (85).
Greenway, 1374 (96), 5051 (96), 5321 (96).
Guillarmod, A. Jacot, 8200 (73).
Gustafson, Robert, 2508 (25 ?).
- von Hagen, 2125 (41).
Hammel 7146 (41).
Haridasan, K., s.n., (July 10, 1981), (12)
Harling, G., 8537 (15), 9096 (15).
Hartman, Ron 12062 (54).
Hayden, Als, s.n. (Tree A) (63), s.n. (Tree B) (63), s.n. (Tree C) (63), s.n. (Caura Valley) (63).
Heringer, A. E. S., 69 (1/7/1979) (6).
Heringer, E. P., 7250 (4), 7293 (4), 7297 (4).
Hernandez, H. M., 4 (14c), 99 (20), 100 (2), 105 (19).
Higgins, L. C., 12892 (24).
Hildebrandt, 3127 (96).
Holguer, L. S., 1772 (15), 1904 (15), 2218 (5), 4176 (7), 4231 (7), 4391 (7), 4453 (7), 4509 (7).
- Intema, J., 166 (64c).
- Janzen, D., 10627 (58).
- Kaudern, W., s.n. (Sept.1981)(96).
Keenan, J., 1119 (K) (10).
Kew, 462.67 (96).
Kinnach, 699 (28b).
Kitchin, s.n., (Sept. 1981) (86).
Krukoff, B. A., 1970-58 (53).
- Last, s.n. (96).
Leifa, Angela, s.n. (June 1982) (96).
Liesner, R., 9148 (63), 9191 (62), 10138 (62).
Liogier, A., 9011-15 (53), 21313 (7), 22412 (96), 24366 (67), 26597 (67).
Long, Lewis E., 160 (45).
Lorence, 2817 (1).
Lowe, 3358 (K) (93).
Lowrie, S. P., 573 (6).
- McClintock, E., s.n. (Jan. 28, 1980).
McDonald, D. J., 254 (94).
MacDougall, T., s.n. (May 1967) (21a).
Maconochie, J. R., 2501 (99).
Marshall, s.n. (29/1-30) (96).
Mejia, M., 8875 (67), 9688 (7), 10993 (96).
Mejicanos, J., s.n. (May 2, 1982) (42), s.n. (May 2, 1982) (56).
Meyer, F., s.n.(1974) (75 as to leaves-seeds do not belong here).
Meyerhoff, 121M (95).
Miller, Th., s.n. (April 22, 1982) (72).

Neill, David, 330 (49), 5008 (44), 5010 (44), 5011 (44), 5015 (34), 5028 (58), 5033 (44), 5050 (41), 5051 (41), 5052 (41), 5054 (41), 5055 (41), 5090 (41), 5091 (53), 5092 (7), 5093 (44), 5094 (44), 5095 (53), 5097 (53), 5098 (16), 5099 (50), 5100 (58), 5101 (34), 5102 (34), 5140 (44), 5142 (44), 5143 (44).

Hawaii: cult., Neill, D.

5187 (25), 5218 (96), 5230 (23), 5231 (42), 5232 (42), 5233 (X7), 5234 (95), 5237 (56), 5238 (102), 5239 (42), 5240 (25), 5241 (106), 5242 (42), 5243 (31), 5245 (39), 5246 (36), 5247 (54), 5248 (73), 5249 (42), 5250 (74), 5251 (95), 5252 (95), 5253 (96), 5254 (94), 5255 (94), 5256 (94), 5257 (43), 5258 (43), 5259 (59), 5260 (42), 5261 (50), 5262 (36), 5263 (36), 5264 (25), 5265 (23), 5270 (54), 5271 (2), 5272 (97), 5273 (8), 5274 (73), 5277 (4), 5278 (22a), 5279 (1), 5280 (106).

Pacific Tropical Botanical Garden, (T. Flynn 121) (93).

Pelaez, S., 357 (96).

Peter, A., 33045 (95), 49809 (95), 49974 (95).

Phengklai, C., 3121 (10).

Pope, G., 1027 (72), 1511 (86).

Rao, A. V. N., s.n. (Dec. 7, 1981) (13).

Read, R. W., 1822 (96).

Reekmans, M., 8049 (95).

Rhoads, A. S., 8391 (22a).

Rhyne, C., 896 (96).

Rogers, F. A. 14514 (74).

Rosa, N. A., 2464 (59).

Rwaburindore, P., 362 (95), s.n., (Dec. 4, 1981) (95).

Sanchez-Mejorada, H., 656 (53).

Saunders, S., s.n. (86).

Schunke, J. V. 8231 (7), 8313 (15).

Shillingford, C. A., 149 (64b).

Silva, M. G., 3084 (1).

Skog, L. E., 1206 (7).

Solomon, J., 4015 (2).

Sousa, Mario, 3140 (14c), 5811 (14c), 9489 (28c), 9702 (14b), 9714 (14b), 9803 (70), 9808 (14), 11829 (70).

Stevens, W., 2911 (53), 4798 (58), 10046 (41), 12229 (45), 13767 (49), 16412 (53).

Steyermark, J., 115493 (102), 118206 (54), 121223 (1), 125486 (62).

Stoddart, D. R., 942 (96), 5090 (99).

Sytsma, K., 1671 (50), 1932 (50).

Tellez, O., 401 (53), 727 (14c).

Wagner, W. L., 3972 (19).

Waimea Arboretum, 74s863 (56), 74s895 (56), 75s1138 (56).

Walsh, M. E., 2250 (96).

White, Betty, 39 (42).

Whitehead, G. B., s.n. (1979) (75).

Wilbur, R. L., 8243 (64b).

deWilde, J., 6347 (95).

Wilson, M. R., 40841 (48).

Zanoni, T., 10530 (7), 10808 (96), 10823 (96), 10831 (53),
11344 (96), 11345 (96), 11516A (96), 11869 (53), 12101
(7), 13349 (67).